

PRINCIPAL AQUIFERS

Aquifers, Aquifer Systems, and Aquifer Extents

An aquifer is a geologic formation, a group of formations, or a material that contains sufficient saturated permeable material to yield significant quantities of water. Aquifer systems consist of aquifer systems. The first type of aquifer system consists of two or more aquifers that are hydraulically connected. Confining units may separate the aquifers but there is regional hydrologic continuity within the system. The second type of aquifer system consists of one or more aquifers that are separated by confining units and may be recharged from different sources. Aquifer systems can be large and complex and may contain brackish or saltwater. They can also be small and localized but share common geologic and hydrologic characteristics, and can best be studied and described together.

In this map, a principal aquifer is defined as a regionally extensive, unconfined aquifer system that is the primary to be used as a source of potable water. The main map of principal aquifers generally shows the uppermost regional aquifer for the given area.

The aquifer names shown on this map are regional names, and may not reflect local names used in specific areas. The names shown for the major aquifers and aquifer systems shown on the map may be the same as the names shown for smaller aquifers because the same may be true because the fault events are concentrated in the same area. A fault system may be a single fault or may be another or a confining unit. It is not clear if the fault events are concentrated in the same area as the fault system or if they are scattered throughout the area. The fault events are shown on the map as red triangles. In Wisconsin and adjacent States, the period of time over which the events occurred is shown by the colors of various layers and parts of northern Minnesota and Illinois. The Cambrian-Ordronian System is the oldest system shown on the map. The Lower Silurian aquifer is the youngest system shown on the map. The Lower Silurian aquifer consists of two coastal plain aquifer systems, the Saginaw aquifer system and the Muskegon aquifer system.

types are differentiated by color; however, additional rock types also may be present in the individual aquifers. Aquifer systems, such as those along the Atlantic Coastal Plain, may consist of a series of layered aquifers that often are separated in many places by a confining layer. In other areas, the entire thickness of the aquifer system is singled out and shown because it is of a different predominant rock type. Examples of this are the Castle Hayne aquifer of the Northern Atlantic Coastal Plain and the

The figure is a map of the Northern Great Plains aquifer system. It shows the outline of the United States and highlights the Western Great Plains region, specifically the states of Montana, Wyoming, and parts of Colorado, Nebraska, and South Dakota. The area is shaded in green and labeled "Northern Great Plains aquifer system". A legend at the bottom right identifies four types of aquifer systems: "Buried portion of Ogallala aquifer system" (yellow), "Cretaceous-Dakota aquifer system" (light blue), "Lower Tertiary aquifer (1)" (green), and "Upper Cretaceous aquifer (2)" (dark green). A scale bar indicates distances from 0 to 500 miles.

A topographic map of the Boston area, showing elevation contours (shaded brown) and major rivers (blue lines). The map includes labels for Boston, Cambridge, Somerville, and New York. A large blue arrow labeled "OCEAN" points towards the southeast, indicating the direction of water flow. The map also shows several lakes and wetland areas.

Sandstone aquifers

- 23 Colorado Plateau aquifer
- 24 Denver Basin aquifer system

-  **Unconsolidated and semi-consolidated sand and gravel aquifers**
 -  **Sand and gravel aquifers north of the limit and gravel plains**
 -  **Sand and gravel aquifers north of the limit and gravel plains**
 -  **Gravel plains**
 -  **Sand and gravel aquifers mostly in glacial deposits**
 -  **Glaciated areas**
 -  **Underlying aquifers**
-  **Regional groundwater systems**
 -  **Upper Tertiary aquifers**
 -  **Sandstone and carbonate-rock aquifers**
 -  **Ephemeral-Tertiary aquifer system**
 -  **Valley and Ridge aquifer—Carbonate-rock aquifers are preferred**
 -  **Mississippian aquifers**
 -  **Fanbeach aquifers**
 -  **Carbonate-rock aquifers**
 -  **Mississippian limestone aquifer**
 -  **Brown Basin aquifer system**
 -  **Groundwater aquifer systems**

- 7 Rio Grande aquifer system
- 8 California Coastal Basin aquifers
- 9 Pacific Northwest basin-illigilite
- 10 Columbia Plateau basin-illigilite
- 11 Snake River Plain basin-illigilite
- 12 Puget Sound aquifer system
- 13 Willamette basin-illigilite
- 14 Northern Rocky Mountain Intermontane Basin aquifer system
- 15 Central Valley aquifer systems
- 16 High Plains aquifer
- 17 Mississippi River basin-carbonate-sandstone
- 18 Florida aquifer system
- 19 Adelocida-Simpson aquifer
- 20 Silurian-Dor�onian aquifers
- 21 Ordovician aquifers
- 22 Upper carboniferous aquifer
- 23 Lower carboniferous aquifer
- 24 Beaver aquifer
- 25 New York and New England carbonate-rock aquifers
- 26 Peconic and Blue Ridge Carbonate-rock aquifers
- 27 Castle Hayne aquifer

Geological Aquifer Systems

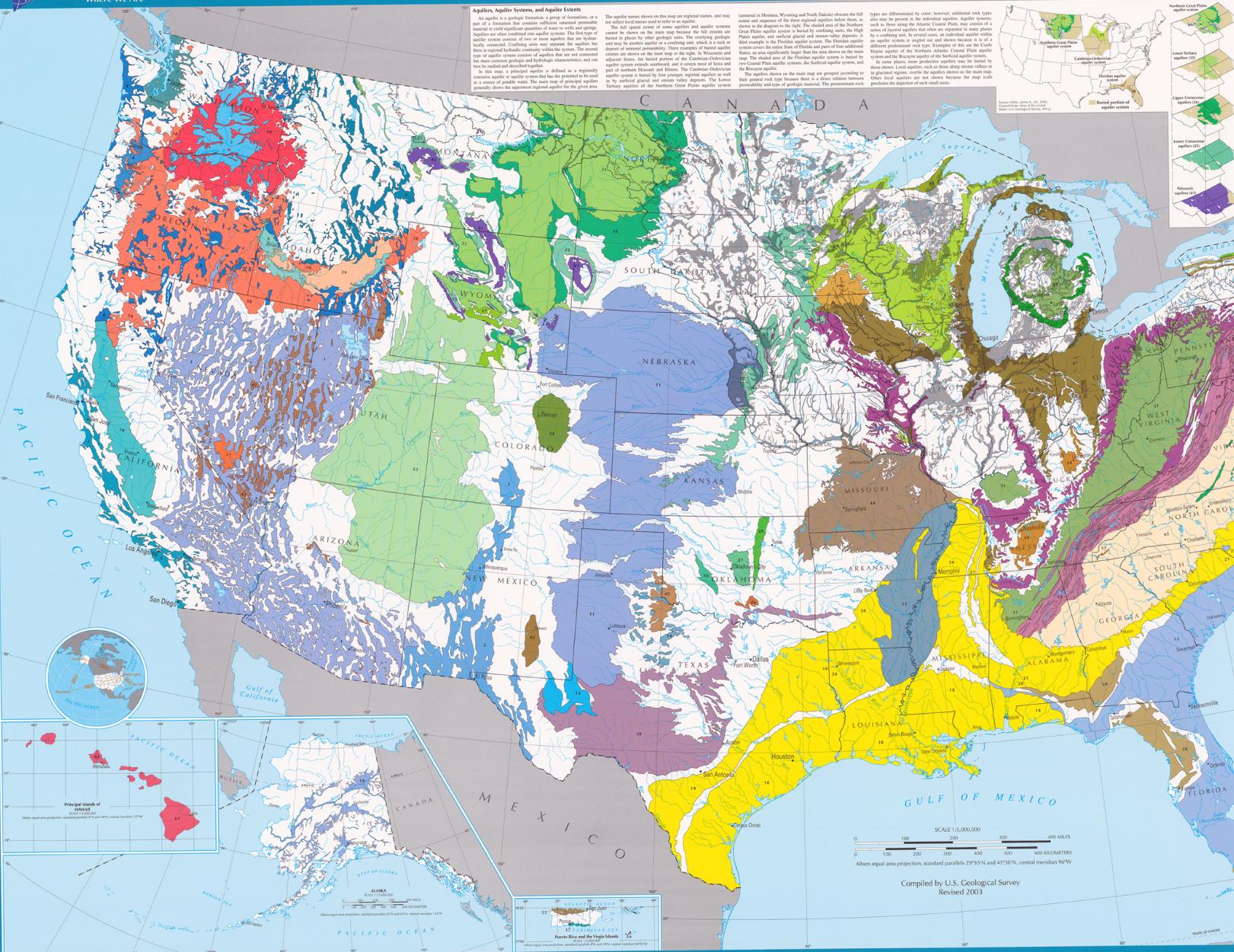
- Mississippi River Valley aquifer**
- Seymour aquifer**
- Surficial aquifer system**
- Uncolored-dominant aquifers (Alaska)**
- South Coast aquifer (Puerto Rico)**
- Coastal Plain aquifer systems in the South**
- Coastal lowlands aquifer system**
- Texas coastal aquifer system**
- Mississippi alluvial aquifer system**
- Southwestern Coastal Plain aquifer systems**
- Northeast Coastal limestone aquifer system**
- North Appalachian aquifer (Ohio)**

Igneous and metamorphic-rock aquifers

- Southern Nevada volcanic-rock aquifer**
- Pacific Northwest bedrock aquifers**
- Shore River Plain aquifer system**
- Mid-Atlantic bedrock aquifers**
- Hawaiian volcanic-rock aquifer—Locally overlying sedimentary deposits**
- Piedmont and Blue Ridge crystalline-rock aquifers**

Other—Rocks that are minimally permeable

The National Atlas of the United States of America™
www.nationalatlas.gov



U.S. Department of the Interior
U.S. Geological Survey

The National Atlas of the United States of America®
www.nationalatlas.gov